

ABSTRACT

The present invention presents a method and apparatus for phase hopping and space-time coding signals for transmission on multiple antennas. The method and apparatus provides expansion of a $N \times N'$ space time block code to a $M \times M'$ space time block code, where $M > N$, by using phase hopping on the symbols within the $N \times N'$ space time block code to allow transmission of the space time block code on a number of diversity antennas greater than N' . A result of M antenna diversity may be achieved for M transmit antennas.

1. A method for transmitting a space-time block code (STBC) on multiple antennas, comprising:
expanding the STBC from a first size to a second size;
phase hopping the symbols within the STBC;
transmitting the STBC on the multiple antennas.

2. The method of claim 1, wherein the first size is $N \times N'$ and the second size is $M \times M'$, where $M > N$.

3. The method of claim 1, wherein the STBC is a space-time block code.

4. The method of claim 1, wherein the STBC is a space-time block code.

5. The method of claim 1, wherein the STBC is a space-time block code.

6. The method of claim 1, wherein the STBC is a space-time block code.

7. The method of claim 1, wherein the STBC is a space-time block code.

8. The method of claim 1, wherein the STBC is a space-time block code.

9. The method of claim 1, wherein the STBC is a space-time block code.

10. The method of claim 1, wherein the STBC is a space-time block code.